

CLAIMS

What I/we claim is:

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1. A cushioned floor mat comprising
a rubber mat structure comprising
at least a first layer comprised of foam rubber; and
a plurality of protrusions integrated within said rubber mat structure.
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2. The floor mat of claim 1, wherein said rubber mat structure further comprises at
least a second layer comprised of a solid rubber.
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3. The floor mat of claim 2, wherein at least one of said protrusions has a core
portion and an outside surface portion, wherein the core portion of said at least one
protrusion is comprised of said first layer of foam rubber and wherein the outside surface
portion of said at least one protrusion is comprised of said second layer of solid rubber.
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4. The floor mat of Claim 1 wherein at least one of said protrusions integrated within
said mat structure has a cross section shape of at least one of circular, oval, elliptical,
octagonal, rounded, and polygonal.
5. The floor mat of Claim 1 wherein at least one of said protrusions integrated within
said rubber mat structure is located on the top surface of said mat.

6. The floor mat of Claim 1 wherein the thickness of the resultant first layer of foam rubber is from about 5 to about 500 mils.

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7. The floor mat of claim 2 wherein said rubber mat structure further comprises a third layer comprised of a solid rubber.

8. The floor mat of claim 1, wherein said rubber mat structure includes at least one of cleats and texture on one of the upper or lower surfaces thereof.

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9. The floor mat of claim 2, wherein the thickness the resultant second layer of solid rubber is from about 2 to about 50 mils.

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10. The floor mat of claim 7, wherein the thickness of the resultant third layer of solid rubber is from about 2 to about 50 mils.

11. The floor mat of Claim 1 wherein the protrusions are shaped or arranged in at least one of groups, designs, patterns, stripes, and combinations thereof.

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12. The floor mat of Claim 6 wherein the thickness of the resultant first layer of foam rubber is from about 75 to about 250 mils.

13. The floor mat of claim 9, wherein and the thickness of the resultant second layer of solid rubber is from about 15 to about 25 mils.

14. A method of a forming a cushioned dust control mat comprising the steps of

(a) placing a die having at least a first and second side over at least a portion of at least one layer of unvulcanized rubber and of at least one layer of unvulcanized rubber further comprising at least one blowing agent to form a closed-cell foam rubber structure upon vulcanization, wherein said die has a plurality of portions thereof removed to allow for the entry of molten rubber, and wherein said die is comprised of a material which can withstand vulcanization temperatures and pressures;

(b) subjecting the resultant composite comprising at least two layers of unvulcanized rubber and the die to vulcanization temperatures and pressures to vulcanize the at least two layers of rubber, and to form a plurality of rubber protrusions through the removed portions of the die.

15. The method of claim 14, wherein at least one of said resultant rubber protrusions comprises a core of foam rubber and an outside surface of solid rubber.

16. The method of Claim 14 wherein said removed portions of said die are

substantially in the shape of at least one of letters, numbers, designs, patterns, circles, ovals, ellipsis, polygons, and combinations thereof.

17. The method of Claim 15 wherein the thickness of the resultant first layer of foam rubber is from about 5 to about 500 mils and the thickness the resultant second layer of solid rubber is from about 2 to about 50 mils.

18. The method of Claim 17 wherein the mat further includes a second layer of solid rubber and the thickness of the resultant layer of solid rubber is from about 2 to about 50 mils.

19. The method of Claim 18 wherein the mat includes a second foam rubber layer and the thickness of the resultant first and second layers of foam rubber is from about 10 to about 1000 mils.

20. The method of Claim 19 wherein the thickness of the resultant first layer of foam rubber is from about 75 to about 250 mils and the thickness of the resultant second layer of solid rubber is from about 15 to about 25 mils.

21. A cushioned mat produced by the method of claim 14.

22. The method of claim 14 further comprising producing a cleated anti-creep floor mat with a mat producing apparatus comprising the steps of:

(c) providing a perforated woven fabric article, which is coated or comprised of a material which will not adhere to at least one surface of at least one of said rubber layers after the vulcanization step, wherein said perforated woven fabric article is optionally separated from a metal platen of said apparatus by a cushioned platen liner;

(d) placing said at least one rubber layer on top of said perforated woven fabric article of step "c" and optionally placing thereon a fabric pile;

(e) transporting the at least one rubber perforated woven fabric article composite to a vulcanization chamber; and

(f) vulcanizing said at least one rubber layer as it remains on top of the perforated woven fabric article, thereby forming cleats through the perforations of said perforated woven fabric article;

wherein said woven fabric article and said optional platen liner are comprised of or coated with materials which can withstand the temperatures and pressures associated with vulcanization.

23. The method of Claim 22 wherein said conveyor belt is made of fiberglass and coated with a coating which can withstand the high temperatures and pressures associated with rubber vulcanization and which will not appreciably adhere to molten rubber.

24. The method of Claim 23 wherein said coating is polyfluoroethylene.

25. The method of Claim 22 wherein said platen liner is either comprised of silicon or is coated with silicon.

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26. A cleated anti-creep floor mat produced by the method of Claim 22.

27. The floor mat of claim 26 comprising at least a rubber sheet component wherein said rubber comprises a plurality of cleats formed integrally on the surface and at least a portion of the surface of said rubber sheet also comprises a weave pattern of molded rubber.

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28. The floor mat of Claim 27 further comprising a pile fabric attached to said rubber sheet.

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